E. coli Monitoring of the Boise River Urban Corridor

Brad Gilmore

Environmental Coordinator

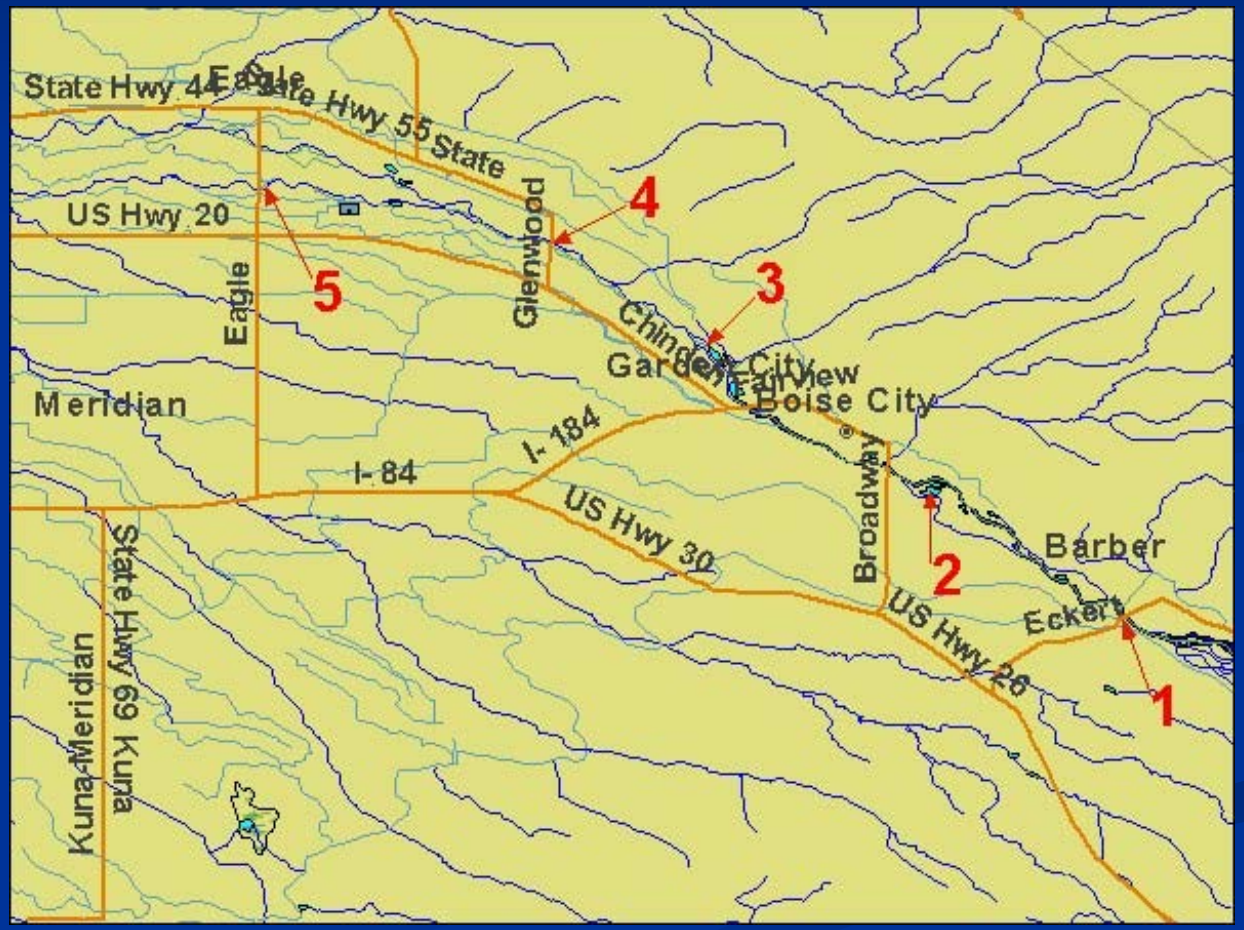
City of Boise Public Works

Program Objectives

- To characterize the ambient concentrations of *E. coli* bacteria in the Boise River urban corridor during the recreational high use summer period.
- Evaluate compliance with Idaho state water quality primary contact recreation criteria.
- Evaluate spatial variability of sample collection locations.

Monitoring Sites

1. Eckert Rd
   RM58.2
2. Marden Ln
   RM54.8
3. Veteran's Parkway
   RM50.1
4. Glenwood
   RM47.5
5. Eagle Rd
   RM43.4



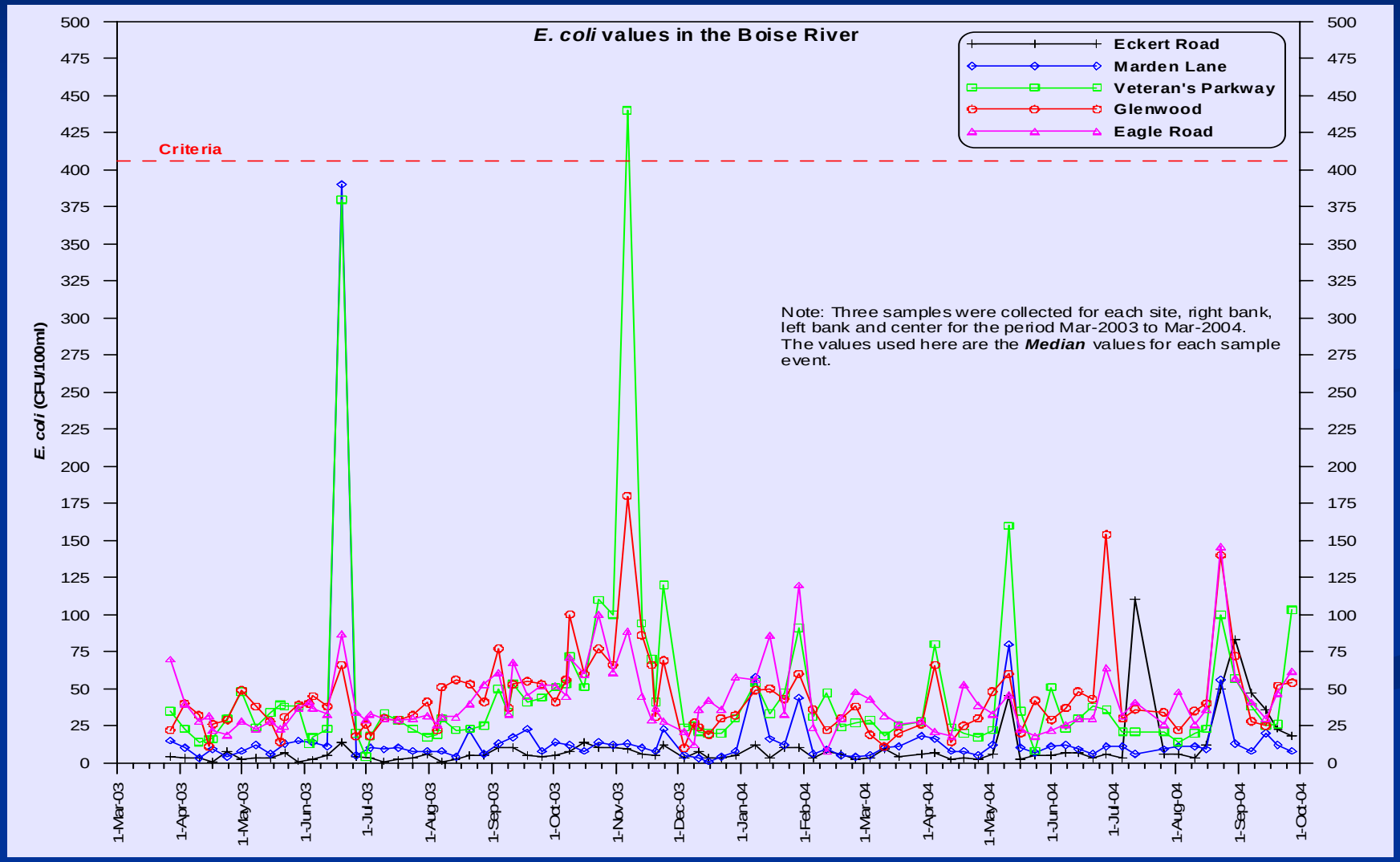
Sampling

- 3 grab samples per site: left bank, center, right bank.
  - March 27, 2003 to March 18, 2004.
  - Median value used for geomean evaluation.
- 1 grab sample per site from the center.
  - March 29, 2004 to September 27, 2004.
- Analysis method 9213D3 - SM membrane filter.

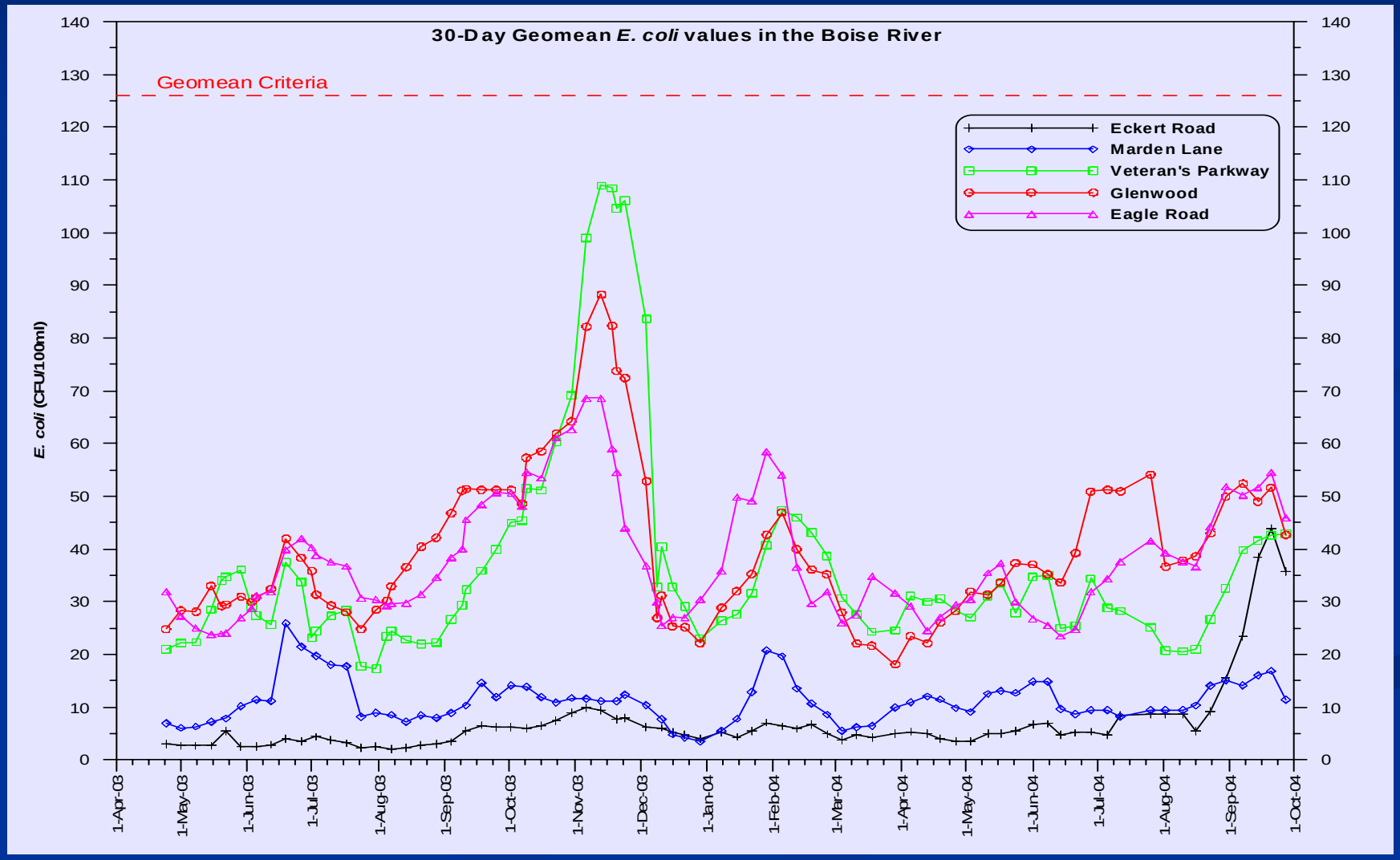
E. coli Primary Contact Recreation Criteria

- Instantaneous criteria of 406 CFU per 100ml
- Geometric mean of 126 CFU per 100ml based on a minimum of 5 samples taken every 3 to 5 days over a 30 day period.
- Designated swimming beaches have a 235 CFU per 100 ml criteria.

Instantaneous Concentrations



Geomean Concentrations



Monitoring Results

- No violations of the instantaneous criteria were observed at three of five locations (Eckert Road, Glenwood Bridge, and Eagle Bridge).
- Exceedance of the instantaneous criteria were observed at two locations, once at Marden Bridge and twice at Veterans Parkway Bridge during the study period.
- No violations of the 30-day geomean criteria were observed at the five sample locations.

Monitoring Results

- The upstream point of the urban corridor typically has a 30-day geometric mean *E. coli* concentration of less than 10 (CFU/100ml)
- Downstream concentrations never exceeded the 30-day geometric mean standard for primary contact recreation of 126 CFU/100ml.
- This is significant in light of the fact that the Boise River is a highly used recreational waterbody that had more than 109,000 user days during the summer of 2003.

Statistical Analysis

- Comparison of means by sample collection location for each site (N=45)
- Paired T-test of independent samples
  - Ho = No Difference (means are equal)
  - Ha = Difference (means are not equal)
- $\alpha = 0.05$

Statistical Analysis Results

- There is no statistically significant difference between sample collection location at each site (right bank, left bank, stream center).

Acknowledgements

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Questions